

# Diesel Trucks – Then and Now

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## Abstract

Commercial diesel trucking trends during the 25 years from 1977–2002 are the primary focus of this poster presentation. We emphasize the developing diesel dominance versus gasoline-powered vehicles among all classes of heavy-duty (>10,000 lbs.) trucks — primarily in fuel use, but also numbers of trucks. Key causes of the growing dominance of diesel fuel use in commercial trucking were substantial increases in market share in all truck classes and moderate increases in miles per truck. In terms of gallons consumed, these included an increase in diesel's share of fuel use from 11% in 1977 to 73% in 2002 by Class 3–7 commercial trucks, the vast majority of which are single unit trucks. For Class 8 (>33,000 lbs.) single-unit trucks the share gain has been from 65% to 95%, while for Class 8 combination trucks the rise has been from an initially high 97% to almost 100%. Class 8 diesel trucks traveled over 100 billion vehicle miles in 2002, more than double that of commercial diesel trucks in all other truck classes combined. Providing major impetus to these trends were a more than tripling of the long-haul (>200 mile trips) movements of Class 7 and 8 trucks. For Class 3–7 there was an increase in vehicle miles traveled (VMT) using diesel powertrains, from 2 billion to 28 billion miles. These changes resulted in new and/or extended diesel dominance over gasoline in each of these classes. In fact, for Classes 3–8, use of gasoline actually declined from 1977 to 2002.

The emergence of new personal use vehicles classified as trucks (e.g., SUVs, vans, four-door pickup trucks) within Classes 1 & 2 (< 10,000 lbs.) and their substantial gasoline use create an impression of a rapidly expanding major market for future penetration by diesel technology. Starting from a small base, diesel powertrains have sharply increased their share of Class 1 & 2 personal and commercial use trucks.

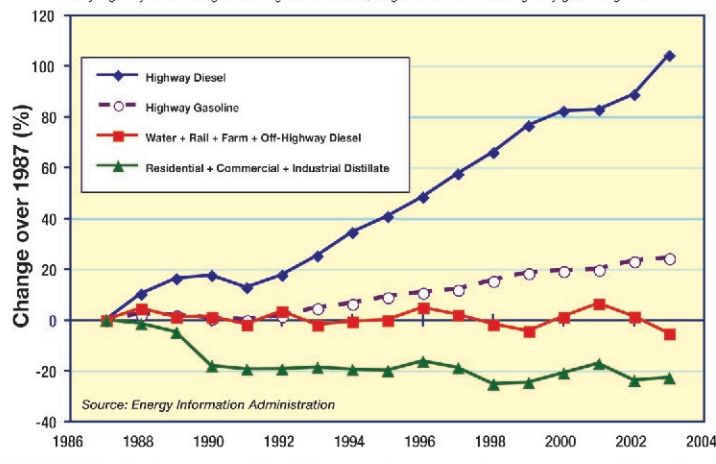
**Diesel Growth % Rates and Shares by Truck Class: 1977–2002<sup>3</sup>**

	1 & 2	3 to 7	8 SU	8 C	Total
Number of Trucks	12700	1170	278	110	486
VMT	15900	974	196	138	235
Diesel Fuel	10100	575	175	91	139
Share of Total Diesel Growth	11	22	11	56	100

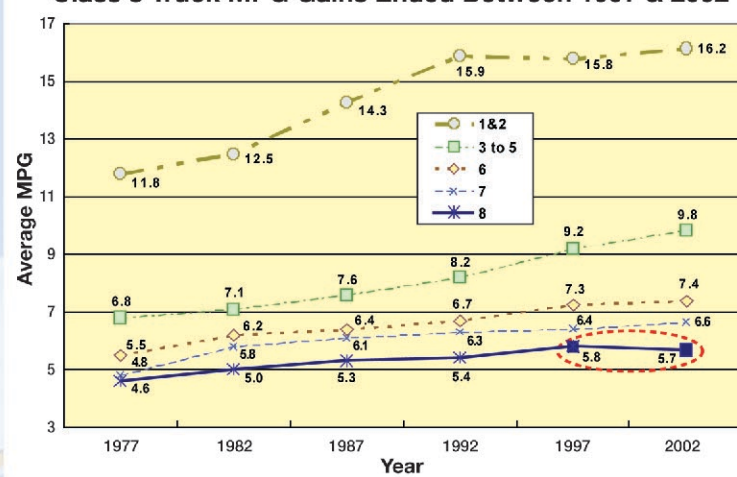
Commercial Diesel Growth Rates Were Rapid in Lower Classes (Single Unit Trucks) but Class 8 Combination Trucks Dominated Total Growth

**Distillate Use Changes: 1987–2003**

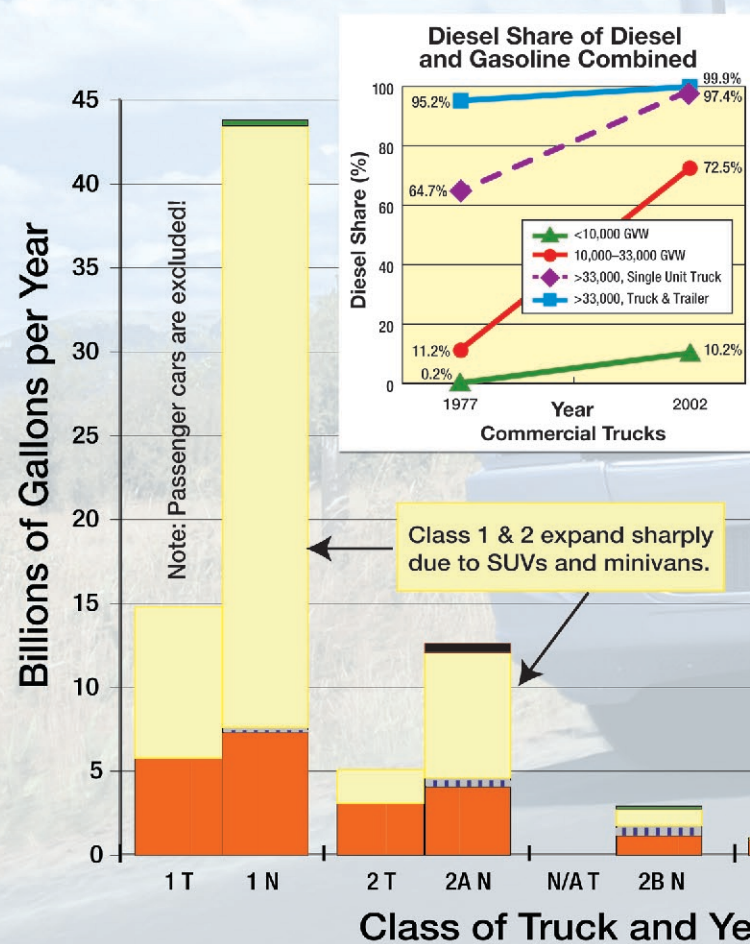
Only highway diesel use grew among distillate users; its growth far exceeded highway gasoline growth.



**Class 8 Truck MPG Gains Ended Between 1997 & 2002**



## 25 YEARS OF GROWING DIESEL DOMINANCE IN TRUCKS HEAVIER THAN 10,000 LBS GVW – and Has Growing Potential in Personal and Light Truck Markets



## Observations

- Transportation's share of national petroleum consumption has increased from 57% in 1970 to 68% in 2003.<sup>1</sup>
- Fuel consumption of buses is estimated at 1.4 billion gallons, with approximately 90% of fuel used being diesel. Estimated bus shares by type are:<sup>2</sup>
  - Urban transit 47%
  - School 37%
  - Intercity 16%
- From 1977–2002, for Classes 1–3, the share of trucks and fuel consumed in personal use vehicles rose significantly in each class.<sup>3</sup>
- In 2002, for all classes with personal truck use, the share of diesel versus gasoline is less in personal use than commercial.<sup>3</sup>
- A related study found that long haul (>200 miles from home base) miles of Class 7 & 8 trucks more than tripled between 1977 and 1997.<sup>4</sup> Similarly, Class 8 combination trucks vehicle miles traveled tripled between 1977 and 2002, further illustrating the dominance of combination trucks in long haul heavy freight movements.<sup>5</sup>
- Light-duty diesel technology has improved considerably. In 2004, 52% of all European passenger cars registered were diesel.<sup>6</sup>

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